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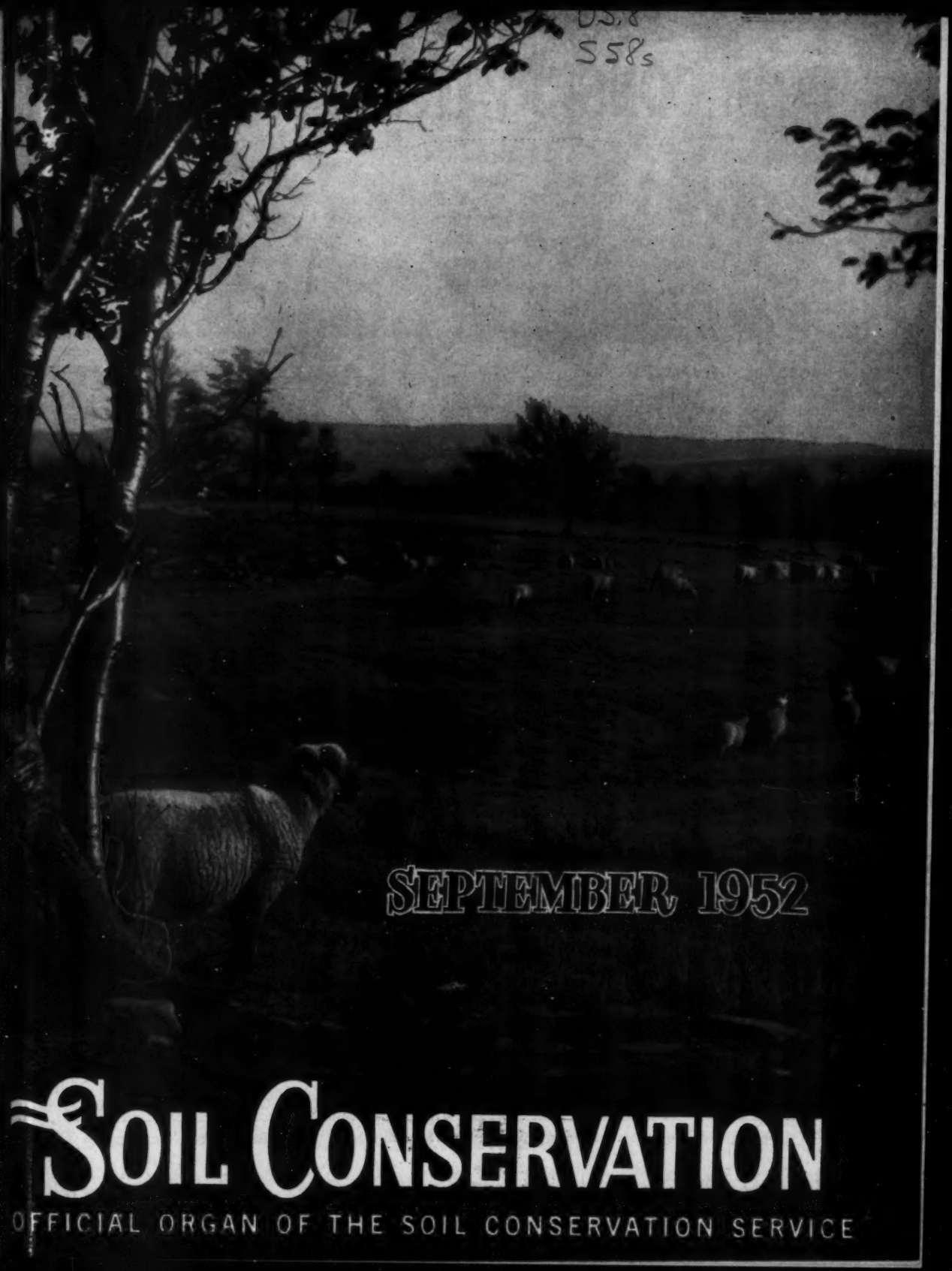

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SECRETARY OF AGRICULTURE

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★ THIS MONTH ★

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WELLINGTON BRINK
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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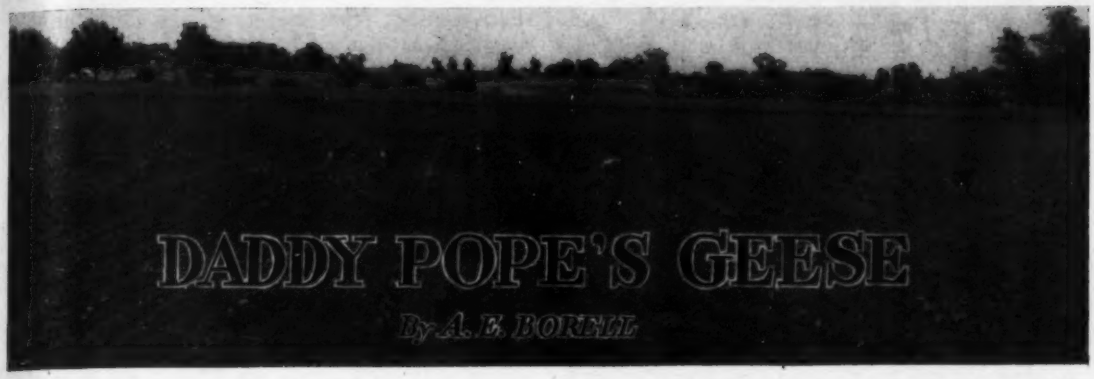
BANK CREDIT AND CONSERVATION.—A Nation-wide survey is being made jointly by the National Association of Soil Conservation Districts and the Yale Conservation Program to determine the effect of bank credit on conservation practices.

The idea is for district supervisors and bank officials to sit down together for a discussion of the economic issue of soil conservation in each community. Out of such discussion will come answers to many specific questions of mutual interest. Among them is determination of the extent to which conservation practices are required as a condition for credit. Another pertains to the extent to which farmers keep reasonably good records of costs and values. Bankers will be asked whether or not they are interested in having in their files copies of the land-capability maps and farm plans of customers' farms and ranches.

From the survey will be developed a report which is expected to be useful to both district cooperators and bankers.

FRONT COVER.—This pastoral scene from the State of New York is as "soil conservation" in aspect as the contoured strips which constitute the trade-mark of modern conservation farming. Grassland agriculture is spreading rapidly not only through the East but throughout the country. It involves many advanced techniques in water distribution, adapted grasses, and managed stocking.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



DADDY POPE'S GEESE

By A. E. BORELL

ACCORDING to D. N. "Daddy" Pope of Roswell, N. Mex., a goose's love of Johnsongrass and its prodigious appetite combine to make a top hoe hand in many a cottonfield.

Paul Ives in his book "Domestic Geese and Ducks" has one chapter entitled "Geese must have grass." In this chapter Ives quotes Roman writers who, as early as 67 B.C., observed that geese thrived on grass and some other green plants.

The successful and economical rearing of geese has always involved the use of pastures, but only in recent years has serious attention been given to the maintenance of geese solely for the control of weed grasses in agricultural crops.

It is likely that more geese are kept exclusively for grass control in the Pecos Valley of New Mexico than in any other area of similar size in the United States. In that area Johnsongrass is a widespread pest in irrigated cottonfields, and geese are used extensively for its control. When questioned about geese, most cotton farmers in that area replied, "If you have Johnsongrass, and most of us have, I don't see how you can raise cotton without geese."

Note.—The author is regional biologist, Soil Conservation Service, Albuquerque, N. Mex.

Keeping pesky Johnsongrass out of irrigated cottonfields is a major problem in the Pecos Valley. Grass in the field probably would be as high as that outside the fence were it not for the geese.

Among the many users of geese, Daddy Pope, in the Roswell Soil Conservation District, is one of their strongest supporters. Pope regards geese as "fine people," who go peacefully and vigorously about their weeding and ask for little except drinking water and plenty of Johnsongrass. They love grass but have no taste for cotton plants. Pope further points out that geese have big feet, which distributes the weight, and they are so deliberate in their movements that they rarely damage cotton plants by trampling, even during irrigation. Farmers in the Pecos Valley rarely refer to geese "feeding"—it is always "working."

One characteristic of geese which endears them to Pope is their faithfulness to their mates and families. The pairs remain mated throughout the breeding season and probably for life. They are solicitous of the welfare of their young and will readily take over the care of any goslings that become separated or lost from their parents.

This trait is used by Pope to simplify the raising of goslings. When the first pair of geese appears with its family, he places them in a sheltered rearing pen and feeds them on a prepared growing mash. As other families appear, he places their goslings with the first family. When the pen is full, or the difference in size of goslings becomes too great, he starts a new pen. This system eliminates the necessity of feeding expensive mash to all the adults and permits the adults that have been deprived of their young to go about their business of hunting for the first sprouts of Johnsongrass that appear in the spring. One wonders why any adults are left in the growing pens with the goslings, but Pope says that a pair of adults keeps the goslings contented and in case of a storm will lead them to the most protected part of the shelter.

Pope's geese nest in boxes, barrels, or in grass under machinery. They lay 12 to 14 eggs, of which about 80 percent hatch. Although remarkably free from disease, goslings may be killed by rats or other predators and are somewhat tender to cold and dampness. They grow rapidly and are ready to go to work when they are between 6 and 7 weeks old. At that age they must have shelter readily available because there is still danger from hail or heavy rain. When the geese are older than 10 weeks, weather is of little concern except that which is very hot—then shade is needed.

The need for shade during the heat of the day is used by some farmers to get complete coverage of their fields. If water is provided at one end of the field and shade at the other, geese working back and forth between the two cover all parts of the field. To one who is not familiar with geese as hoe hands, it is always a surprise to see a flock spread out in workmanlike fashion—one goose to the row. Instead of running back and forth between rows, it is not uncommon to see each goose of a flock stick to his own row and work completely across a large field, sometimes for as much as a quarter of a mile.

Johnsongrass grows rapidly. New shoots or nipped-off blades may grow an inch or more in 24 hours. This tender new growth is eagerly sought by geese and they work up and down the rows day after day. This continuous nipping weakens the roots and eventually kills out the Johnsongrass. Each year, however, a new crop of grass starts from seed, so the goose's work is never done.

Pope says that it costs two or three times as much to hoe Johnsongrass as to control it with geese, and the geese do a better job. Most fields require about one goose per acre, but in badly infested fields this number may be increased. If there is plenty of Johnsongrass, no supplemental feeding is required, but in fields where Johnsongrass is sparse, some feeding of grain may be necessary. In this the farmer must use judgment because, as one farmer put it, there is a delicate balance between a good weeding job and starvation. If too much supplemental feed is given, the geese will get too fat and lazy to be good workers; if not enough, they may starve to death.

Since tame geese can neither fly nor jump, a wire netting fence 2 to 3 feet high is adequate to confine them to the fields. Geese are rarely affected by disease and live to be 10 to 12 years old, occasionally much older. The greatest hazard is dogs. Adult geese can cope with hawks and smaller predators, but stray dogs sometimes do considerable damage.

Geese thoroughly enjoy a daily swim but seem to thrive without this luxury. Pope main-

tains that there is a much higher egg fertility, however, when geese have access to a pond or ditch during the mating season.

There are two ways to obtain geese. One is to buy each year a new flock of goslings or adults. Goslings sell for $1 up in the Roswell area, and adults or young ready to go to work sell at $5 to $7. Dependence on purchase involves uncertainty. In years of large cotton acreages goslings or geese may not be available at the time you want them.

The second course, which is the one usually followed, is to maintain your own flock from year to year. The only drawback is the expense of feeding the flock for the 8 or 9 months during which they are not working. If the cotton grower has grainfields, pastures, alfalfa, creek bottoms, or other areas where geese can forage, the winter feed bill will be low, but if the geese must be fed through the nonworking period on hay and grain, the feed bill will be sizable. In some areas where no off-season pasturage is available, the cost of feeding may make year-round maintenance of a flock too high to be practical. In the Pecos Valley where geese are kept solely for the purpose of weeding cotton, most farmers give little attention to their flocks except during the working season. The grower who takes good care of his flock throughout the year can usually sell enough eggs, goslings, or young birds to cover most or all of the cost of winter feeding; he may even make a profit. Commercial goose raisers usually gather the eggs and hatch them in incubators, but most farmers in this area let the geese do their own incubating.

Geese used in the Pecos Valley are mostly Toulouse or Toulouse-Emden crosses. I talked with no one in that area who had tried the smaller Chinese geese. When working and living entirely on Johnsongrass, geese are much lighter in weight and more active than the lazy, well-fed ones we usually see around farmyards. When asked about fattening geese for the Christmas dinner, Pope replied, "Some people do it but I'm not enthusiastic about eating my hoe hands."

Geese have also been used successfully in the weeding of onions, potatoes, strawberries,

(Continued on page 47)

A GEOGRAPHER AND THE SOIL

Dr. Martine Emert.

By DELBERT WILLIS

"THIS," said the college professor, as she reached for a hunk of soil on her desk, "is a clod of good dirt. It can make nations great and it can cause wars. It sustains life and lack of it causes famine."

Dr. Martine Emert was beginning a geography lecture at Texas Christian University. Unlike most teachers in her field, she was placing little stress on such old stand-bys as rivers, capitals, States, and countries. The focus of her courses is on soil conservation! What makes this new approach even more re-

Note.—The author is director, "Save the Soil and Save Texas" contest, *Fort Worth Press*, Fort Worth, Tex.

markable is that TCU is a liberal-arts institution. It doesn't even have an agricultural department!

No product of the farm herself, Dr. Emert discovered the importance of saving the soil after growing up in a city and receiving three degrees from the University of California. She had traveled all over the Western Hemisphere and studied geography from every conceivable angle.

What caused pioneers to move to new land? What caused people to muster arms and kill their neighbors? Why were some nations poor, others rich? Why were some farmers living a good life, others providing the raw material for books like "Grapes of Wrath"?

She sensed that she had found the answer in the wasting away of soil, the erosion of fertile lands into deserts.

TCU has captured the spirit of her enthusiasm for soil saving. Her classes are packed. Night sessions were instituted with an opening enrollment of 47 persons, including businessmen as well as students.

College heads decided to make at least one lecture by her on soil conservation a requirement for every student in the school.

To give them a close look at how ignorance and carelessness have brought erosion and poverty, she leads her classes on regular field trips. She has gone into the sky with them in planes to study the pattern of gullies through what were once cottonfields on rolling land broken by the pioneers.

With Dr. W. J. Hammond, of the TCU history department, she is making a study of how erosion has affected social conditions in nearby Ellis County. This is being carried on through a Carnegie Foundation grant.

Dr. Emert, a Phi Beta Kappa at the University of California, ranks soil erosion as the No. 1 problem of the world.

Ahead of the current international strife?

"Yes," she says emphatically. "People are starving to death. History is the story of hungry men in search of food. A hungry man is ripe plucking for a dictator."

Education is the only hope, she believes, and educating men who use the soil, men steeped in the farming ways of fathers and grandfathers, is a trying task.

Her classes are not dull lectures burdened with statistics and monotonous generalities. She uses the lively touch, the provoking anecdote.

An avid and skilled amateur photographer, Dr. Emert takes pictorial evidence of washing soil, which she brings back to the classroom.

Because of her work in higher education in placing emphasis on soil conservation, Dr. Emert won a plaque in the seventh annual "Save the Soil and Save Texas" awards program sponsored by the *Fort Worth Press*. She was chosen the professional person, or nonfarmer, who rendered the most unselfish service to soil conservation in 51 counties of north central Texas.

QUICK RETURNS FROM SHELTERBELTS.—Well-planned shelterbelts become effective in a very short time. Conrad Rygg near Clifford, N. Dak., a cooperator with the West Traill County Soil Conservation District, has shelterbelts which are only 4 years old, but the trees reduce blowing for a distance equal to several times their height. At the rate they are growing, it won't be long until he will get a lot of benefit from them.

They are already producing fruit. Mrs. Rygg and the girls harvested several hundred pounds of sand cherries last fall to make into jelly. Neighbors got a large quantity, too; and 140 pounds were sent to the nursery at Mandan for seed.

Rygg's shelterbelts, which total 25 acres, were planted as part of the conservation farm plan he developed with the aid of Allen L. Fisk of the Soil Conservation Service. The district helped him get good seedling stock, and he rented the district tree planter.

The farm has largely sandy soil, so the trees, together with strip cropping, stubble-mulch tillage of fallow land, and use of grass and legumes in the crop rotation, will help control wind erosion—the principal conservation problem.

FRIEND TO FRIEND.—A year-round gift of SOIL CONSERVATION Magazine is ideal as a reminder of your thoughtfulness, and as a spur to making a good farmer a better farmer. See subscription rates inside front cover.

CONTEST TERMINATES PROMOTIONAL CAMPAIGN

By CARL NELSON

WHEN the Leelanau Soil Conservation District in Michigan's northern, hilly, cherry-growing "Little Finger" peninsula held its annual meeting this year, the crowd which filled the hall included as many housewives, school children, and businessmen as farmers. The annual meeting was the culmination of an intensive 2-month promotional campaign.

Features included a "soil conservation quiz-down for women," the awarding of 36 prizes to school children, and the presentation of a hat to the "Leelanau soil conservation farmer of the year."

Plans for the ladies' quiz-down were formulated 2 months in advance. First and second prizes of $20 and $10 were offered to the women who could answer correctly the most questions about soil conservation. All women over 21 residing in the county, rural or urban, were invited to participate as individuals or as representatives of organizations. Sample questions and soil conservation information were made available.

Elmer Warner, district treasurer, hands cash prizes to winners in quiz: Mrs. Kirk Bixby, of the First Lutheran Ladies Aid Society, first; Mrs. Leonard McNeil, of the Belles of St. Mary's, runner-up.

Grade-school children who won prizes display their posters.

First-place winners in high-school essay contest receive awards from Elmer Warner: Rebecca Weiss, grade 12; Jeanette Maleski, grade 10; Barbara Weiler, grade 9, and Joan Kiessel, grade 11.

Eight contestants and their enthusiastic adherents braved the winter's worst snowstorm for the event. Among the questions were "How

Note.—The author is editor of the *Leelanau Enterprise*, Leelanau, Mich., and also a cooperator with the Leelanau Soil Conservation District.

does a diversion terrace differ from a sod waterway?" "What is a land-capability map?" "Name three soil-depleting crops." "What grasses and legumes are recommended for improving upland pasture?" "For what are multiflora-rose plants used?" and "What is the recommended rate of seeding for Ladino clover?"

Gerald Selby, one of the county's leading businessmen, acted as quiz master, but he wasn't expected to know all the answers! Three referees, seated down front and holding a stop watch to time the contestants, let him know by upraised hands when the questions were correctly answered. The referees were a conservation-minded farmer, a county agricultural agent, and a representative of the Soil Conservation Service.

Originally the contests for school children were planned for two sections only, one for high-school students and one for grade-school pupils, but the businessmen changed that when the district directors called a meeting of representative businessmen and educators to ask for suggestions on their proposed promotional program. The contests for school children were fine, said the businessmen, except that there ought to be one for each grade. The district directors demurred that they did not have enough money for prizes for that many contests, whereupon the businessmen declared they would see to the prizes. And they did—to the tune of eight wrist watches, eight pen-and-pencil sets, and eight flashlights, for first, second, and third prizes in each of the first eight grades. The district offered prizes of $10, $6, and $4 for each of the four high-school grades.

A committee appointed by the directors then got together with a committee of teachers to decide what kind of contests might be offered for children in the lower grades. They agreed on the following:

First grade: For the best drawing of a gully.

Second grade: For the best drawing of a sod waterway and a brief explanation of its purpose.

Third grade: For the best drawing of crops being grown in contour strips and a brief explanation of how such strips help save soil.

District Chairman Herrick Waterman (left) congratulates Gus Rufli, who was recognized as "Leelanau Soil Conservation Farmer of the Year." With the title went the hat.

Fourth grade: For the best essay of 100 words or less on "How Wind Robs Us of Our Topsoil."

Fifth grade: For the best explanation in 100 words or less of the statement, "Raindrops that walk downhill carry away less soil."

Sixth grade: For the best essay of 200 words or less on "How Cover Crops Protect the Soil from Wind and Rain."

Seventh grade: For the best essay, not to exceed 500 words, on "Why Farms in Leelanau County Need More Land in Hay, Pasture, and Trees."

Eighth grade: For the best essay, not to exceed 500 words, on "How Pastures in Leelanau County Can Be Made to Yield More Feed for Cattle."

For the first three grades of high school, the subject was "In What Respects Is the Leelanau Soil Conservation District a Unit of Local Government and How Does It Function?"

Seniors were asked to write on the subject of the National Grange soil conservation essay contest, "Conservation Farming for Abundant Living," so that their essays could be entered in competition.

The committees of judges evaluating the 321 entries agreed that it was the most worth-while promotion the soil conservation district ever had staged. The work of the children in the first, second, and third grades was particularly outstanding. The pictures, many of them drawn in large size and brightly colored, were used to decorate the hall in which the annual meeting was held.

Winners were notified before the annual meeting, but were not told whether they had won first, second, or third prize. The children, with their parents, were invited to attend the meeting where they received their awards of wrist watches, pen-and-pencil sets, and flashlights.

Like the women's quiz-down, these contests were announced and promoted through newspaper publicity. A complete written outline of the subjects and the rules for the contests also were supplied the principal of every school in the county.

The "Soil Conservation Farmer of the Year" award was based on the number of permanent soil conservation practices in effect on the farm, length of membership in the district, and helpfulness in promoting interest in soil conservation. Farmers who were members of the district's board of directors were not eligible. Technicians of the Soil Conservation Service assigned to the district selected 12 candidates from among the district cooperators, and a committee appointed by the directors made the final selection. The award went to a fruit grower who has strawberries, raspberries, and a young cherry orchard planted on the contour; maintains an old orchard under a sod and mulch system; had constructed a number of diversion terraces and sod waterways; and had cooperated in a number of demonstration projects to which neighboring farmers were invited.

To continue its promotional program throughout the year, the district plans "twilight tours" and picnics for businessmen and educators during the summer, an "open house" on the farm of a district cooperator, and a conservation banquet in the fall. It also is planning to launch a series of snapshot contests, with prizes for the best pictures of farmers carrying out soil conservation practices, such as planting trees for reforestation and windbreaks, plowing and cultivating on the contour, laying out contour strips, etc. A number of women already have asked for another quiz-down next year, and when school children were asked whether they would like to have similar contests next year, they responded with an enthusiastic shout.

SEED PRODUCTION AND BEES.—Four soil conservation districts in northwest Arkansas have taken the lead in organizing a beekeepers association to provide planned pollination services and produce honey. A big increase in legume-seed production is expected to follow.

The supervisors of the Benton County, Madison County, Washington County, and King's River-Long Creek Soil Conservation Districts realize that legumes require insect pollination for high seed yields. So they organized a series of meetings in 1951 to let farmers and beekeepers get acquainted and exchange information on the increase of legume plantings and the need for pollination services.

The 1951 meetings were followed by a session recently in Rogers, Ark., to encourage formation of a beekeepers association. The group quickly developed a going organization, the Northwest Arkansas Beekeepers Association. Officers are H. L. Foster, president; W. H. Smith, vice president; and Mrs. D. N. Doke, secretary-treasurer. Directors are Bert Jackson, L. A. Carman, Pat Claybourn, and Mrs. George Whitman.

Supervisors attending the organization session were Tom McNeil, Harry Stitt, Elbert Graham, and Mack Givens of the Benton County Soil Conservation District; Ewell Boyd, A. H. Berry, Hugh Hargis, and Ralph Buck of the Madison County district; and Ewing Jackson, Hugh Williams, and J. H. Pyeatt of the Washington County district. The meeting was addressed by Phil Allan, regional biologist of SCS; Mrs. Rea Davis, secretary of the Arkansas Beekeepers Association; R. H. Davis, Arkansas State inspector of apiaries; and Erwin Gleu, field representative of the *American Bee Journal.*

—J. E. CRITZ

Members of Future Farmers from Putnam County and Wayne County plant trees as their share in making the new camp and conference center.

CHANCES are very good that the West Virginia hills will have a greener look in the near future. This greater verdancy will be due partly to the planning and development of a conservation laboratory, an important aspect of a brand-new State institution known as the West Virginia Youth Camp.

This camp sprang to life with its establishment by the West Virginia Legislature in 1949. When developed, it will provide facilities for 1,000 young people at a time. There will be 5 groups of cottages of 200 capacity each. There will also be an assembly hall and a dining hall seating 1,000 at a time, as well as a chapel, a museum, an arts and crafts building, and a large swimming pool. All these structures will be centered around a mirrored lake or reflecting pool.

The setting is a peaceful valley 2 miles east of Ripley, in Jackson County, and midway between Charleston and Parkersburg—only 38 miles from the State capital.

Approximately 228 acres have been set aside for the camp, of which about 110 acres will be used for the conservation laboratory. The topography is fitting for the project because it encompasses flood land, hill land, and bottom land; is badly eroded; and has gullies, drainage problems, and virtually every situation likely to be found in West Virginia.

Striving for a laboratory which would provide the largest possible educational value, members of the vocational division of the West Virginia Board of Education, the agency which has the responsibility of developing the camp, called on a State-wide committee of conservation people for assistance in planning.

(Long-range plans were formulated by a nonprofit organization, the West Virginia Future Farmers of America-Future Homemakers of America Foundation, Inc.)

Answering the call were members of the

Note.—The author is supervisor, West Virginia Youth Camp, Ripley, W. Va.

West Virginia Conservation Commission; the Soil Conservation Service; the extension division, West Virginia University; the College of Agriculture and Forestry of West Virginia University; the Farmers Home Administration; the National Park Service; the West Virginia Park Service; the Vocational Agriculture Service; the Glenville State College; the Monongahela Power Co.; the State Committee of Supervisors of the Soil Conservation Service; the State Road Commission; and the National Forest Service.

The committee moved into the laboratory area in March 1951 and set a date for a follow-up meeting in April. By then the planning had been divided into four phases—forestry, soils, wildlife, and recreation—with a chairman for each. The subcommittees spent the next few months working out details.

After a year, the various subcommittees reassembled at the laboratory area for a 2-day conference last May. It was then that each subcommittee reported what had been planned and spent many hours revising and adjusting their plans until the four divisions were integrated.

Upon arriving at the action stage, the laboratory was divided into 15 areas, each of which was to have a different treatment. Among other things, the plans call for planting about 70,000 trees—Christmas trees, black walnuts for development and demonstration of the black-walnut industry, and hardwoods to show proper management of farm woodlands. There will be a nature trail featuring shrubs, flowers, and various trees; a demonstration of the proper management of the sugarbush; and a demonstration of types of trees that will grow under different slope and soil conditions.

Each area will have a border around it to demonstrate the various food and shelter plantings suitable for our wildlife friends. Certain

Forestry and wildlife committees drawing up plans for development of the conservation laboratory. Left to right: Lawrence Cavendish, camp supervisor; A. H. Anderson, supervisor, Monongahela National Forest; Earl Core, department of biology, West Virginia University; Clyde Hibbs, vo-ag teacher; James Beach, chairman of the wildlife committee, district game manager, conservation commission; Rogers Pease, horticulture department, West Virginia University; and Malcolm Crooks, game division, conservation commission. Not shown is Tilden Norris, chairman of the forestry committee, conservation commission.

This view, from the highest point, looks out over the broad expanse of bottom land, with the nearly completed water-storage dam and reflecting pool in the foreground.

Future Farmers and leader (glasses) from Elkview, W. Va., planting one of two trees by which their chapter will be represented in the arboretum surrounding the entire tract. Two trees of every species native to the State will be included, and each will bear a metal identification tag. From the left: Wayne Wiseman, Billy Shaffer, Junior Flowers, A. H. Holland, Ronald James, and Kermit Halstead.

areas are to be left for development of other practical wildlife practices.

In order that each area may be utilized to the best advantage, trails have been planned leading through it with proper markers and open assembly points for explaining what each group should see.

One area will have an arboretum containing all of the trees native to West Virginia. Here, in less than a mile of walking, youngsters, as well as oldsters, may see all of our native trees.

The recreation committee has planned a picnic area and areas for organized recreation of various types. There will be fishing in the two lakes that are already completed. One of the lakes covers about 5 acres and holds 60 million gallons of water. The other—the mirror lake—is in the center of the building area and covers more than 3 acres. Both were planned by SCS engineers. Other attractions will include a swimming pool, baseball diamonds, tennis, archery, and other sports useful in the conservation of boys and girls.

A 10-acre tract will be operated as a part-time farm. Here a person who plans to hold an industrial job and do farming in his spare time or during plant shut-downs will learn

what he can accomplish in livestock raising and other activities.

The soils committee has drawn up plans to put in a number of conservation practices such as diversion ditches, sod waterway, silting basins, plantings for badly eroded areas, and others of a practical nature. Eventually plans will call for most conservation practices that should be used on both the hill and bottom lands of West Virginia.

The committee adjourned with the feeling that the job is only started and the plans call for follow-up meetings at least once each year.

Yes, the West Virginia hills should take on a greener hue once the camp and laboratory are developed, and 1,000 boys and girls from

all over the State start coming in each week to camp and learn how to treat our hills to keep them beautiful and help heal over those scars left by men who did not know or care about conservation.

THE ECONOMICS OF THE CONSERVATION PROGRAM

By B. F. VANCE

Chairman,
Texas PMA Committee

The author.

CONSERVATION of soil and water is a national problem and is becoming more important as our population increases. Right now we have little doubt but that, with wise management of our soil and water resources, we can produce plenty of food and other agricultural products to care for our population even if it goes on increasing at approximately 2½ million people a year. It is presumable that our present rate of production, from the good land we have left, can take care

Note.—In 1947 Mr. Vance took leave from his present post to serve for 9 months as production specialist with the American Mission to Aid Greece. Some of his observations during that period are contained in this article.

of the population for the next quarter century. After that time the situation will begin to change unless we have been following a sound conservation plan and the soils we have are made to produce more abundantly.

Certainly, our national objective should be to continue and intensify the programs to conserve the soil and water in order that the Nation may remain strong agriculturally for centuries to come.

History is full of examples where nations fell because of their inability to produce sufficient food.

To realize the importance of conservation, one needs to see some of the older countries where civilization has gone backward. I had that opportunity. It impressed on me what can happen in this country if we do not take our soil and water conservation problems seriously.

I saw many thousands of acres of land in Greece where good crops were grown a few hundred years ago. Today that land is washed away down to the rocks. Around Old Corinth is a grim example of erosion and its results. This ancient city was buried with soil that washed from the hillsides nearby. Those hillsides today have only a little soil left in the irregular surfaces where rocks prevented its washing away. Men and women are still trying to exist by farming these plots of land which are not large enough for mechanical cultivation.

Evidence indicates that in many places 8 to 10 feet of good soil had washed down the hillsides and destroyed not only the farming areas where the soil came from but also the areas below, because the better soils were covered by the poorer soil from the hills.

Near the sea, I saw alluvial, level land which had been farmed for over 2,000 years. It is producing abundantly today where the proper methods are practiced. Much of this land has been depleted of its fertility, but by the proper application of minerals and through crop rotations it is possible for it to make excellent yields.

I have wondered what Greece would be today if a sound conservation program had been developed and carried out several hundred years ago, if the hillsides had been properly terraced, if the farmers had followed a good crop-rotation system and turned humus back to the soil, if minerals had been applied at the proper times, and the lands had been used according to their capabilities insofar as practicable.

The agriculture of Greece is in a terrible plight. And yet in our own land we destroyed more good soil in the first 150 years of our history than any other nation as far as we know.

Since most of our lands are privately owned and operated, our conservation program must be such that the operators will be conscious of the necessity for conservation. They must realize that conservation pays off to the individual operator, that it will return to the farmer his cost plus a reasonable profit within a reasonable time. We cannot hope to get conservation practiced on many farms where the reward will come in the distant future. We cannot expect to sell conservation on the basis of protection against starvation for future generations. Most farmers do not believe they are financially able to carry out many practices unless economic returns justify such practices.

Under present conditions many needed long-time conservation practices, such as terracing, range improvement, and conservation cropping systems, do not give immediate economic returns to justify the cash outlay for the execution of the practice.

Such practices pay good returns, but the operator may not get his cost back in added returns next year—or for several years. The cost of these practices would mean the owner, in most instances, would have to go to the bank for money. He would put it off while erosion destroyed more and more of his land and while the cost of needed conservation treatment grew year by year.

This means that we must continue public assistance for good conservation if we are to accomplish our objective. It means that we must continue a price-support program in order that the income from the higher yield as a result of better conservation practices will not jeopardize the farmer's economic position.

Assistance may take many forms—technical, monetary, or the furnishing of materials and

services. One of the essential conservation measures is to get a good cover of grasses or legumes on the land, using the minerals that may be needed to make thrifty growth. On many millions of acres of land in such crops as cotton, corn, and peanuts, it is not possible to have sufficient cover on the land during many months of the year. Therefore, other measures must be taken.

The farmers in the United States have made more progress, conservationally speaking, during the last 25 years than has been made in any other country in the world with the same problem. This has been done because of the consciousness on the part of the general public of the need for conservation. It has been made possible by the information that has been furnished by the agricultural colleges and other agencies, the technical assistance that has been furnished by the SCS, by the plans that have been developed and carried out by the soil conservation districts, and by the monetary assistance that has been furnished by the PMA and other agencies working in the field of soil and water conservation.

Yields have been increased tremendously in many sections of the country and prospects are that continued increases in yields will be forthcoming through the proper development and execution of National and State programs. This coordinated program must continue to function and increase its effectiveness.

FESCUE IN ROWS, CLOVER IN MIDDLES

TALL fescue and Ladino clover make a good soil-conserving, forage-producing team when they work together.

By PAUL TABOR

Note.—The author is management agronomist, regional nursery division, Soil Conservation Service, Spartanburg, S. C.

Seed-increase field of Kentucky 31 in rows, large white clover in middles.

A good farmer can keep the two crops in line by proper management. This may mean extra nitrogen fertilizer when the grass languishes, or extra phosphate and potash if the clover needs help. It may mean moderately close grazing or cutting for hay or silage to prevent lodging and disease troubles in wet weather, or it may mean lower rates of seed per acre to prevent overcrowding.

If the usual hazards are intensified by drought and heat, another method may be necessary. When Ladino clover burns out during excessive summer drought, there isn't much chance of reestablishment in a moderate to dense stand of tall fescue. Experience on Soil Conservation nurseries in the Southeast indicates the solution may be the planting of fescue in contour rows 30 to 36 inches apart with clover in the middles.

The continued persistence of tall fescue in rows with Ladino clover in middles is a by-product discovery. Most of the SCS nurseries in the Southeast have grown Kentucky 31 fescue in contour rows 30 to 36 inches apart, using about 5 pounds of seed per acre. This

spacing and seeding rate was near optimum for 2 or 3 years. After this time, the grass became crowded in the row and needed large amounts of nitrogen and minerals for seed production.

The use of legumes in the middles to furnish part of the nitrogen was suggested and tried. It didn't work well on upland for seed production, because two crops pulled too heavily on the soil-water supply, and the vetches and winter peas tangled the seed heads of the grass. Ladino and big white clovers have continued to grow in the middles for 3 years. On similar upland soils, the clover disappeared in broadcast seedings with tall fescue. Nursery Managers W. C. Young at Thorsby, Ala., and W. H. Mann at Sandy Level Nursery, Gretna, Va., have successful stands of Kentucky 31 fescue in rows with Ladino clover or big white clover in the middles.

In one plot at the Sandy Level Nursery, Ladino clover has pushed out the fescue in broadcast stands. It happened quickly before the cause could be determined. In other similar situations, a leaf-blotch disease, *Rhizoctonia solani*, attacks the fescue plants during periods of hot damp weather. Fortunately the clover is resistant. When the dense growth of clover-grass falls down, an ideal condition is provided for the disease.

On rich lowland at the Chapel Hill, N. C., nursery a mixed seeding of Kentucky 31-Ladino clover failed because the grass shaded out the clover. The management used was favorable for fescue seed production. The grass plants used the nitrogen left in the soil by the clover and grew larger and taller than in other fields on the nursery.

Grass rows and clover middles do not provide so firm a footing as a broadcast mixture. More selective grazing is also permitted, which may result in overuse of the clover. Lower yields may result from close continuous grazing with the fescue plants kept too small for optimum growth. Any farmer will hesitate to plunge into so many disadvantages if he can maintain fescue and clover in broadcast stands or in narrow rows.

Planting tall fescue in rather wide contour rows with Ladino or big white clover in the middles appears to be the surest way of keeping both. It may be valuable where the hazards of heat and drought are rather high. Less seed will be required per acre. More care in grazing will be needed. The fescue plants should be allowed to grow bigger than in a broadcast pasture.

A HOMESTEADER EMBRACES NEW METHODS

By JAY S. DICKENS

IT is a far cry in northeastern New Mexico from the precarious cash-crop operations of the homestead days to the current livestock program wherein only small acreages of the best land are used to produce livestock feed.

A good illustration of what has happened is to be seen on the ranch of Thomas I. Brown, near the little town of Des Moines in Union County. By applying conservation practices, Brown finds that his forage production has increased 60 percent since the old Dust Bowl period, and that his yearlings now weigh from 50 to 75 pounds more per animal.

Now in the Northeastern Soil Conservation District, Brown homesteaded his original 320 acres in 1913. The first sod was broken out during the winters of 1914 and 1915. Since then he has made numerous additions to his holdings of from 40 to 100 acres of cultivated land each.

Crops in homestead days were mainly corn and beans. These provided quick income for the early settlers. Soon, however, the home-

Note.—The author is district conservationist, Soil Conservation Service, Clayton, N. Mex.

Thomas I. Brown

steaders realized that such crops furnished very poor cover for the land and that a lot of topsoil was lost by wind erosion.

During World War I, Brown and other homesteaders in the area attempted to switch over to wheat production, and a few successful crop years were recorded. Often, however, a dry fall and poor winter cover resulted in additional soil losses from the high winds during winter and spring. This led to the disastrous Dust Bowl of the thirties.

When the Northeastern Soil Conservation District was organized, Brown hoped that the conservation program might help check erosion, so he became a cooperator in 1940. The original plan, which he and SCS technicians drew up, provided for reseeding of abandoned cropland, contour furrows, diversions and water spreading for conservation of moisture on range land, and additional watering places.

In discussing this original plan recently, Brown said that before becoming a district cooperator he had been trying to work with the water and handle it by means of diversions and other erosion-control structures, but that his efforts failed because there was more water than he could cope with. By using the combination of practices outlined in his conservation plan, he soon found that he could keep the water under control and make good use of it.

Although the land that Brown was cultivating at the time his conservation plan was written was not considered suitable for good crop production, he continued to farm the best of it for several years.

His success in reseeding fields that had been retired from cultivation influenced him to make use of the land-capability survey made by the technicians. An amendment to his conservation plan, prepared in 1949, resulted in all but 20 acres of his poorest farm land being retired from cultivation, and approximately 45 acres of new land being broken out for feed production.

The new 45-acre field has been completely terraced, and Brown plans a cropping system that will maintain good stubble for protection against high winds. He is opposed to using cultivated fields for pasture in this wind-erosion area, and believes that the grazing of crop stubble causes soil blowing. He plans to use only hay crops of oats or millet and will leave a good stubble.

Brown also favors large dike terraces on small areas subject to overflow. These hold runoff water on extremely heavy soils that have slow infiltration rates. This provides good soil-moisture storage for small acreages in feed-crop production.

This pioneer is convinced that there is more profit to be had from small acreages treated intensively, using a combination of soil and water conservation practices, than from large acreages of doubtful productivity.

ENTIRE CLASS TAKES TOUR.—The Georgetown, Del., High School recently sent its entire sophomore class to the field for a day's observation of soil and water conservation, good land use, weed killers, fertilization, grain elevators, poultry feeding, and biology as applied to poultry and marine life in the Delaware area. It was the first time in the State that anything larger than a special study group had ever made such a 1-day tour. Paul Hodgson, professor of agriculture at Delaware U., and William Ratledge, SCS farm planner, accompanied the students.

INDUSTRY'S STAKE IN CONSERVATION

By WALTER C. GUMBEL

The author.

OUR interest in conservation directly affects all of our electric customers. Those customers represent many interests—agriculture, coal, steel, chemicals, lumber, business, hunting, fishing, and many others. The farm families we serve can neither, for example, afford the luxury of electric living if the productivity of their land suffers, nor can they be good customers of other industries built to produce goods for them.

Because of these relationships, we feel that resource conservation in all its aspects is no longer a matter that affects only farmers. It obviously concerns industrial, commercial, urban, and recreational interests—in fact, entire communities, be they large or small. Many of us, until recently, were inclined to consider the wise use and conservation of the renewable natural resources as applying only to the agricultural interests of the Nation. This is perhaps because much of the conservation and reclamation work has been and will continue to be done on the land. In recent years, however, groups other than agriculture have come to recognize that they too have a stake in such resources.

May I cite one example? In the territory we serve there are many natural resources—coal, gas and oil, timber, salt brine, sandstone, and water, of course. We want to grow, as a territory, and, naturally, as a business concern. We have the resources; the other part of the job is to attract capital, bring in the industries that will utilize the resources. One of the first questions we must answer concerns our water supply. Can we guarantee a strong and steady supply of good water? Another question pertains to outdoor recreational facilities, including those for hunting, fishing, picnicking, and swimming. In a territory like ours, in which nearly half of the population and most of the land area are rural, corrective measures to provide these resources must be established on the land. Even in the matter of providing an adequate labor supply, industry has been able to draw from a large segment of our population labeled part-time farmers. They are people who live on the land but whose farms are so small that they have the time and the need for supplemental work in industry. When the soil resources on their lands are depleted, when hunting and fishing and other forms of outdoor recreation become poor, their tendency is to move away, to search for employment where they can find it, rather than try to do something about it themselves. To correct this situation, one industry in cooperation with local conservation agencies set up a special school to encourage their workers to stay on the land and establish good land use and conservation measures.

Our interest is selfish, yes; but perhaps that is the soundest kind of interest. The president of the company I represent has been emphasizing the idea of self-help for a number of years, encouraging others allied with the power company to get behind worth-while projects like resource conservation and community service for their own good. He is firmly convinced that when you are looking for allies in such an undertaking, the best approach is to look to those who have selfish interests. When the wise use of our resources can be presented to industrial interests as a sound business venture, something that can directly affect their own economic welfare, then you can depend on their help. Even the churches have found that

Note.—The author is conservationist, Monongahela Power Co., Fairmont, W. Va. He also is editor of the *Journal of Soil and Water Conservation* and serves in important capacities with various organizations concerned with the protection of natural resources.

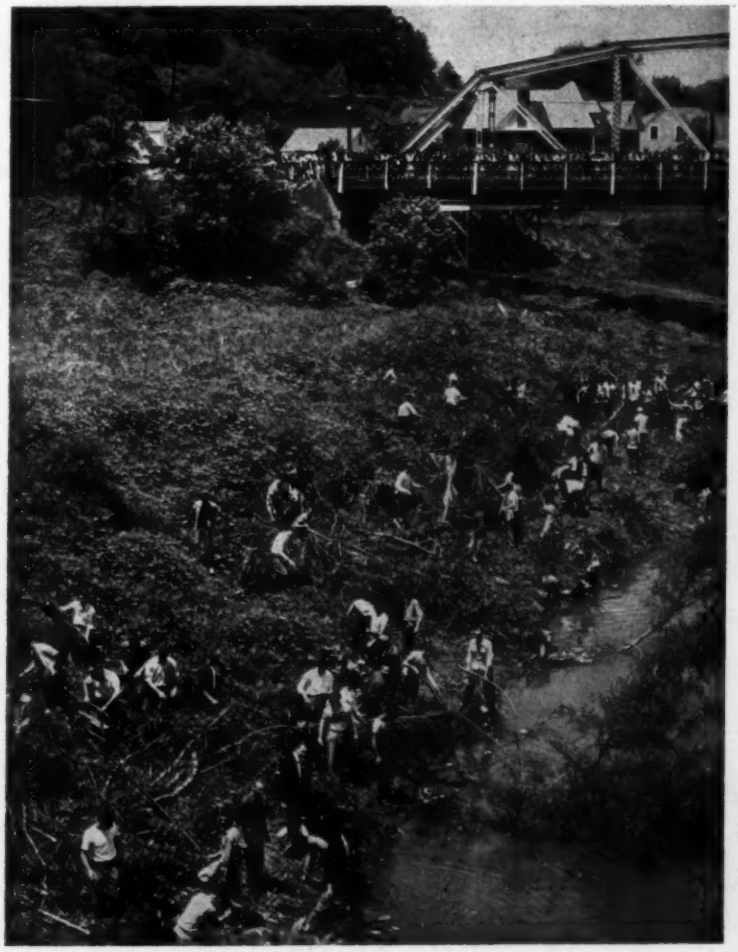
the economic value of conservation is related directly to their own existence and growth.

I mentioned our relationship to the farmer. We have a heavy investment in him, gambling on the prospect that he will continue to farm and expand his economy to the point where we will get a return on our investment, if not through him directly, then through the business and industry that stands to profit by his growth. If he fails, we are hurt. The farmer can move away; we cannot.

That is why we are a part of the conservation movement.

We have been growing into our conservation efforts by degrees for the past 6 years. Early in 1945 we brought into one of our valleys a noted engineer to make a study of the watershed problems and needs and to recommend a plan of development. His report on the watershed gave our company a better understanding of the job to be done, and as we looked deeper we became more conscious of our stake in the land and its conservation, and of the long-range planning that would be necessary to obtain the development he recommended.

One statement was particularly impressive. In speaking of floods, he said: "Regardless of where dams are placed to control floods, without land-use and soil-conservation practices 75 percent or more of the flood damage to the land will continue." Taking this as our cue, we proceeded to enlist the efforts of others to begin



These workers are clearing away brush and flood debris along the Little Kanawha River, Glenville, W. Va.

thinking in terms of watershed development. It provided an excellent approach for cooperative effort by industrial, commercial, agricultural, and recreational interests. All aspects of resource conservation were involved, including those pertaining to soil erosion, depleted forests and wildlife, loss of farm and industrial income, pollution, floods, nutrition, and a host of others. These touched everyone.

There was a lot to be done, mostly to create concern and an interest among the people of the territory we serve. Soil conservation districts were doing a fine job then as now, but the over-all job of watershed development now goes far beyond the individual farm. Businessmen had to be shown that haystacks are as important as smokestacks to the economy of their communities. Most of all, communities must be made fully aware of their role in planning. If the program to manage our land and water resources is to serve the best interests of all, it must be planned at the community-watershed level.

The power company does not presume to be an "expert" on the subject of resource conservation. Our only aim is to help, and implement, the efforts of recognized conservation and educational agencies and the experts in any way we can. There are many organizations that are justifiably classed as expert because they have been a part of the conservation movement for many years and have devoted full attention to the subject. The Soil Conservation Society of America, the Wildlife Management Institute, many educational institutions, and soil conservation districts are excellent examples.

We are not in conflict with any of these bodies—and when I say "we" I am speaking for all business and industrial interests that have a stake in our resources and are involved in the job of helping. Everyone is working toward a common objective. The only difference is that we are aiming at different audiences. We, the conservation "amateurs," do have certain facilities, however, for reaching people whom the experts do not have time to reach.

Who are the amateurs? They represent agricultural publications, banks, dairy-product companies, equipment and supply dealers, fertilizer manufacturers, limestone producers, mining interests, power companies, railroad, rubber, and steel companies, and others. Amateurs, perhaps, but certainly not amateurs in the business sense. They have a professional interest in conservation because it means dollars and cents, and is basic to the economy of the Nation.

The helper I know most about is the electric-power industry. Because of the reasons already pointed out, 76 percent of all electric utilities operating in America now are engaged in some type of agricultural programs that involve the wise use and conservation of our soil and water, forests, wildlife, and related resources. We have one committee within the Edison Electric Institute that deals entirely with rural development and resource use. This committee is now in the process of formulating an industry handbook covering all phases of resource conservation and how member companies can cooperate by implementing the efforts of others in this field.

There are many other helpers. The West Virginia State Chamber of Commerce is actively supporting a State-wide program of watershed development and, in cooperation with regional groups, conducting a series of four principal river-basin, watershed-development conferences.

In two of our major valleys, regional organizations, sponsored by newspapers and supported by civic, industrial, and agricultural leaders, have made watershed development a "must" in their over-all area-development programs. During the past winter definite steps were taken in the Monongahela, the Little Kanawha, South Branch of the Potomac, and the New River Basins, to start the big job at the local watershed level—back in the headwater areas.

They will have to depend on outside help from local, State, and Federal governments, to be sure, but they will be in a position to say, "Here is what we want," and "Here is how we want it done." They have learned that agencies from the outside, no matter how efficient, capable, or sincere, cannot know the community's local problems as well as the community knows them. What looks sound on paper is not sound if it disregards human principles.

The company for which I work was active in the promotion of conferences that led to initiating these development programs—first through a State watershed-development conference, then through conferences in each of the four watersheds I have mentioned. The conferences were designed to bring together all related interests—urban, agricultural, industrial, and recreational. All aspects of resource-use problems and needs were discussed—soil, water, forests, wildlife, pollution, recreation, and others.

More than 800 persons representing every segment of society participated and took part in discussions and group "workshop" sessions. Out of the meetings came the following watershed-development objectives for West Virginia:

1. Recognition of the watershed as the proper unit for the wise utilization and development of all lands—crop, pasture, forest, and wildlife, such lands to be treated in accordance with their peculiar needs and by methods that will both control soil erosion, conserve water, enhance wildlife, improve farm income, and prevent flood damage to agricultural lands.

2. Retardation and prevention of floods through the placement of small multipurpose reservoirs and other water-impounding structures at the headwaters of streams and in problem areas.

3. Provision for an abundant supply of water for domestic, industrial, and agricultural needs.

4. Development of wildlife refuges and expansion of game-food and cover programs.

5. Abatement of organic, inorganic, and soil pollution in West Virginia streams.

6. Broad expansion of recreational facilities such as public parks, picnicking and camping grounds, with more lakes and streams suitable for boating and fishing.

These six points represent the combined thinking of industrial, agricultural, commercial, and recreational interests. There is no conflict. We are now in the process of finding ways and means to translate these objectives into an action program on a community-watershed basis; also, to bring about their acceptance by the State as "State policy." It is our firm belief that States and local units of government must share in the resource development of their areas by providing leadership, finances, and legal status. If this is not done, the only course left open is for the Federal Government through its appropriate agencies or commissions to do the entire job for the people. The Federal Government has definite resource-conservation responsibilities and should work with and through the States. The present cooperative arrangement between the Soil Conservation Service and soil conservation districts is an excellent example. We cannot operate harmoniously under two sets of policies.

As a company, we have sought to stimulate and develop interest in conservation and wise use of resources through other channels.

Just about a year ago, the little country town of Glenville, W. Va., located near the headwaters of the Little Kanawha River, decided to do something about floods. Floods were coming with alarming regularity and each became more expensive. Three times in the first 4 months of 1951 the Little Kanawha River had overflowed its banks and flowed down Main Street. Each time, business places, property owners, and the community suffered losses that were measured in thousands of dollars.

It looked like a pretty big job for the town to tackle, but they were determined to do it, and they soon found a lot of volunteers. Townspeople were recruited to help with clearing brush from the banks of the river. Construction firms in the area loaned bulldozers and other equipment to remove the sand and gravel bars in the stream. Lumber crews and right-of-way crews from the power company and the gas company moved in. I was asked to help plan and supervise the attack. The power company's publicity department set about to help tell the story and was instrumental in getting it on television and radio.

Glenville, as the result of its own efforts, overcame the flood problem in a single day of concentrated effort. For about $2,000 they achieved something that, had they waited for government help, might have cost 10 to 20 times as much.

The Glenville story illustrates how we operate in our territory. Similar approaches were used in connection with a West Virginia Land-Use Day demonstration, which attracted more

(Continued on page 47)

REVIEWS

LAND FOR TOMORROW: The Underdeveloped World. By L. Dudley Stamp. 230 pp. 1952. Bloomington, Ind.: Indiana University Press. $4.

In this book Dr. Stamp, English geographer who has long turned his attention to land problems, summarizes his lectures for The Patten Foundation at Indiana University in 1949-50. The particular problem with which he deals is "that of matching the world's use of its natural resources with the needs of its people." He attempts to steer a middle course between those who see population control as the only "road to survival" and those who see "new worlds emerging" in undeveloped lands such as the tropics.

The author points out that "the American population is growing at a far greater rate than India's 'teeming millions'" and, furthermore, that the white peoples of the world have gained more in numbers than other peoples. Whites have, in fact, increased tenfold in the past century, or four times as rapidly as the total world population. In treating the world's lands, Dr. Stamp emphasizes the limits of physical and climatic conditions controlling the growth of crops desired by man. Acknowledging a couple of million square miles of underdeveloped land in the tropics, he admits the enormous difficulties of bringing them into use. He calls for more study and better techniques, pointing to failure of past projects, such as the now famous Groundnut Scheme of the British is east Africa.

In a chapter "Food for All," the point is made that if output per unit area is the criterion, maximum agricultural efficiency is found in China, Java, and northwestern Europe. With present knowledge and range of crops, the United States, Argentina, and Canada are the underdeveloped countries. "Is there any reason why output per acre in these areas should not be brought up to northwest European levels?" asks the author. One of the interesting conclusions of the book is that the truly underdeveloped areas, in relation to potentiality, are most likely to be found in our familiar middle latitudes rather than in the tropics.

In "Salvaging the Old World," Stamp commends land-use zoning in Great Britain, a program with which he has been intimately concerned. Its 10 classes or categories of land are directed at the "optimum use of every acre in the national interest." He maintains that agricultural machinery designed for American conditions is not suitable for the Old World, and calls for each country to work out its own solutions. In "Preserving the New World" the author points to the need for the world to become aware of "its stupid behavior, through a process which has been well called 'the mining' of the soil for the sake of 'cheap' food." He describes the UNESCO-supported World Land Use Survey and then points to the following as desirable lines of development: (a) erosion

L. Dudley Stamp.

control, (b) pest control, (c) new strains of plants and animals, (d) increased use of organic manures and chemical fertilizers, (e) better adapted farm machinery, and (f) improved food processing. He admits that to date such developments have not kept pace with population increases.

One finishes the book feeling that he has been introduced to some new points of view and numerous facts neatly presented, but that the problem the author set out to treat is not solved, even theoretically. The "if's" that condition its solution are prodigious. There are a few references and an index, along with a fair amount of graphic and tabular material.

To one interested in the food-population problem, and to whom this book may appeal, the reviewer calls attention to several other popular works on the subject that have appeared rather recently. They are: "Let There Be Bread," by Robert Brittain, journalist turned philosopher; a symposium by English authors entitled "Four Thousand Million Mouths"; and "The Geography of Hunger," a controversial book by Josué de Castro, chairman of the FAO Executive Council. And one should not overlook Bertrand Russell's "New Hopes for a Changing World," most vigorous and stimulating of them all.

—EDWARD H. GRAHAM.

INDUSTRY'S STAKE

(Continued from page 45)

than 15,000 people; the organization of the West Virginia Forest Council; the selection of a pilot county for the development of a conservation-education program in the public schools; conservation educational camps and workshops; and the creation of our experimental watershed in cooperation with the United States Forest Service.

We are also cooperating with civic and business organizations, sportsmen's clubs, agricultural groups, youth groups, and churches, helping them with the organization of conservation programs that fit the needs of their areas.

The job ahead is big not only in West Virginia, but throughout the Nation. The wise use of resources is one of America's biggest and most pressing problems, not only because of its effect on the land but also because it involves the way of life itself.

DADDY POPE'S GEESE

(Continued from page 29)

raspberries, orchards, nurseries, as well as pond and ditch banks. Since they prefer grass to clovers, geese may be used to remove undesirable grasses from alfalfa and other legumes.

Pope says that in addition to being top hoe hands who pay no attention to holidays and never heard of an 8-hour day, geese are good watch dogs, giving alarm whenever strangers come around. They are handsome, friendly birds which add interest and beauty to farm life. As Dickens noted, "Every man thinks his own geese swans."

HIGHER YIELD WITH LESS WATER.—J. M. Eaton makes twice the crop with half the water and a fifth of the work, as a result of applying a conservation plan to his irrigated land. Eaton is a cooperator with the Butte (S. Dak.) Soil Conservation District.

The irrigated land supplies winter feed for sheep. Some of it is in small grain, but 102 acres is in alfalfa for hay production. Eaton's conservation plan covers 17,320 acres.

Planned for the range land are improved grazing management, construction of stock-water facilities where they are still needed, and water spreading to increase grass production.

Initially, the field was uneven. It was necessary to apply lots of water to irrigate the higher areas. The soil is heavy clay. The water would stand on the surface of those low areas until most of it evaporated. Water entered slowly. The result was that part of the crop was drowned out.

The land has been leveled, a border-dike system of irrigation established, and structures to permit control of the water have been installed. The lay-out was designed by the SCS, and PMA aided with conservation payments.

SUITABLE PRIZES.—Subscriptions to SOIL CONSERVATION Magazine are becoming popular prizes for essay contests.

KINGSBURY SOIL CONSERVATION DISTRICT

COURT HOUSE PHONE 235

DE SMET, SOUTH DAKOTA

June 20, 1952

Mr. Wellington Brink
Editor, SOIL CONSERVATION
Soil Conservation Service
Washington, D. C.

Dear Mr. Brink:

We thought that you would be interested to know that for the fourth consecutive year we are furnishing our cooperators of the previous year a one year's subscription to SOIL CONSERVATION magazine. This time the number of subscriptions amounts to 110, which in addition to the cooperators who have never had the magazine, includes the banks, libraries and High Schools of the county.

In checking our records of the past four years (our district began operations in 1948) we find that we have purchased 470 one year subscriptions so that you can readily see that our board of supervisors is convinced of the value of this magazine to new, as well as old cooperators.

Our district is not a very large one, having only about 1300 farming units. We had 435 cooperators at the close of the fourth year of operations. For our own information we were wondering how other districts regard SOIL CONSERVATION and how many of them have bettered our record, considering all aspects, in the use of this publication.

Sincerely yours,

Roland Leonhardt

Roland Leonhardt, Chairman
Kingsbury Soil Conservation District

A QUESTION, AND A CHALLENGE.—Every reader should consider carefully the above letter from the chairman of the Kingsbury Soil Conservation District.

Four years' experience in supplying new cooperators with SOIL CONSERVATION Magazine is a good test. As with many other districts, the magazine has proved invaluable to Kingsbury in arriving at a common understanding, and in helping newcomers to become a part of the working team. It has also more than paid its way in the form of practical information that can be put to work on the land—techniques explained simply, educational ideas that have made schools and whole communities conservation-conscious, news notes gathered from all over the country full of how-to-do-it suggestions. Regularly, 12 times a year, each cooperator is reminded that he is an important part of something big and worth while in American agriculture—a unique and democratic movement which helps this land to be strong and free.

The investment is small, and the returns are big. Can any district afford not to make use of this important tool? How many districts can match the record of Kingsbury?

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